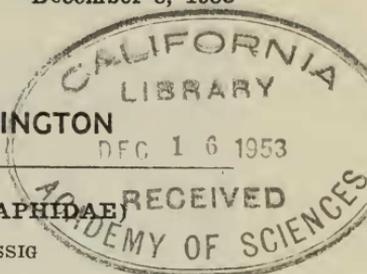


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



FOUR NEW SPECIES OF CINARA (APHIDAE)

BY F. C. HOTTES AND E. O. ESSIG

The four new species described herewith were collected in States in which limited Aphid collecting has been done. We wish there had been more material from which to describe these species, but for the most part they differ greatly from other species within the genus *Cinara*.

Cinara alacra new species

Apterous viviparous female:

Size and general color.—This species is described from a single cleared specimen, color notes from life not available. Length from vertex to end of anal plate 4.57 mm. Head and first two antennal segments dusky brown. Third, antennal segment yellowish with apical portion of segment brown. Fourth and fifth antennal segments with basal halves yellowish remainder of segments brown. Sixth antennal segment with base yellowish, remainder brown. Median suture of head very dark. Last three segments of rostrum dark brown, apical portion of second segment spotted. Femora with basal halves yellowish shading quickly to dark brown. Prothoracic tibiae with a short region near base blackish-brown, followed by a yellowish-brown region, which shades quickly into very dark brownish-black. Meso and metathoracic tibiae with just a suggestion of brownish-black at knees, followed by a yellowish-brown region to middle of tibiae, remainder of tibiae very dark brownish-black. All tarsi brownish-black. Cornicles deep brown. Dorsum of abdomen with quite a few small irregular shaped pigmented spots each provided with a single hair. Just anterior to the cornicles there are two larger pigmented spots, these have five and six hairs each. The spiracles arise from brownish pigmented spots. Transverse pigmented area divided, the posterior margin of each spot provided with one or two irregular dows of hairs.

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Head and thorax.—Antennal segments with the following lengths: III .50 mm., IV .185 mm., V .128 mm., VI .143 +.042 mm. Third and fourth antennal segments without either primary or secondary sensoria. Fifth antennal segment with a large primary sensorium, sixth segment with primary sensorium comparatively small, and six marginal sensoria which are rather far removed from the primary. Antennal hair sparse, rather spine-like, about two times width of segment in length, and for the most part inclined at an angle of about forty-five degrees. Ocular tubercles present but small. Rostrum with segments four and five extending beyond metathoracic coxae. Last three segments of the rostrum with the following lengths: .214, .171, .057 mm. Metathoracic tibiae short, measuring only 1.78 mm. Hair on outer margin of tibiae

much longer and more spine-like than hair on inner margin. Hair on outer margin about equal to width of segment, inclined at an angle of about sixty degrees.

Hair on inner margin or tibiae more numerous and more inclined near apex. First segment of hind tarsis with about eleven hairs on apical half of segment. Hair on dorsal surface of second segment of tarsis longer and more spine-like than that on ventral surface. The first segment of the hind tarsis is .1 mm. long, the length of the second segment is .30 mm. The mesosternal tubercle is absent.

Abdomen.—Cornicles with outer margins vary irregular in outline, measuring about .31 mm. The cornicles are provided with a few long spine-like hairs and many fine and also shorter hair. Neither type of hair extend to the extreme outer margin of the cornicles. Dorsum of abdomen with many comparatively short spine-like hairs which measure about .07 mm. in length. Most of these hairs arise from small pigmented spots hardly larger than the diameter of the hair. The ventral surface of the body is provided with fine sharp-pointed hair, which seem to occur in two lengths, the longer being about twice the length of the shorter. Cauda and anal plate provided with long fine hairs, both of these structures are brown in color.

Holotype apterous viviparous female. Santa Rosa Mt. alt. 7,500 ft. Nevada. Host *Abies conocolor*. R. M. Bohart coll. May 31, 1940. Deposited in collection of E. O. Essig. There is one additional slide of this species but the specimens are not mature.

This species differs from *Cinara lasiocarpae* (Gillette and Palmer) by having two kinds of hairs on the cornicles, shorter hair on the antennae, tibiae and abdomen, much shorter unguis. It is perhaps most closely allied to *Cinara pectinatae* (Nordlinger) which Dr. Börner has made the type of a new genus he described and named *Buchneria*, to which on the information we have, this species does not seem to belong. *C. pectinatae* has not yet been recorded from North America. *C. alacra* differs from *C. pectinatae* in having fewer hairs on the ventral surface of the first tarsal segment, and in having them on the apical half of segment rather than throughout the length of the ventral surface, the first tarsal segment is shorter, shorter body and tibial hair, two kinds of hairs on cornicles. *C. pectinatae* seems to have the transverse pigmented spot, replaced by a series of pigmented islands, and to have two kinds of hair on the cauda and anal plate.

Cinara vagabunda new species

Alate viviparous female:

Size and general color.—The single specimen from which this species is described is somewhat distorted as mounted on the slide so that the actual length in life is most likely less than that given here. Length from vertex to end of anal plate 4.14 mm. The color is described from the cleared specimen, no information as to color, being available from notes taken from the living specimen. Head and thorax dusky brown. Antennal segments dusky with apical portions of segments slightly darker. Pro and mesothoracic tibiae with knees brown, remainder of tibiae yellowish shading to darker near apex. Metathoracic tibiae

brown, remainder of tibiae almost a uniform dark brown, portion not so just a shade lighter and on basal half of segment. Segments three, four and five of rostrum brown, with median ventral portion of third and fourth segments yellowish, third segment with two brown spots within yellow area near base. Apical portion of second segment of rostrum spotted. Tarsi brown. Wings lightly, but very definitely, and uniformly smoky in color, except for structures normally darker. Dorsum of abdomen with four rows of small wax pore plates. Cornicle base exceedingly small, but what there is, is brown. Cauda and anal plate pale at the base.

Head and thorax.—Length of antennal segments as follows: III .457 mm., IV .243 mm., V .27 mm., VI .1+.071 mm. Secondary sensoria distributed as follows: III ten, irregular in size, tuberculate, arranged in an irregular row, IV none to three, V none to one. Hair on third antennal segment not quite twice width of segment in length, the ratio being 5-3, set at an angle of about sixty degrees. Dorsum of head with many fine hair, which are slightly longer than the hair on the antennae. Ocular tubercles present but small. Lateral lobes of thorax with uniform distribution of hair, posterior intersegmental lobe also with hair. Radial sector slightly bowed. Media with two branches, second branch closer to margin of wing than to first. Surface of wings scale-like and rough. Hind tibiae 2.64 mm. in length. Hair on hind tibiae uniform on outer and inner margins, distinctly shorter than width of tibiae, rather coarse, numerous. First segment of hind tarsis with about twelve hairs, and about .114 mm. in length. Second segment of hind tarsis .343 mm. in length. Mesosternal tubercle absent. Rostrum most likely not extending beyond coxae of mesothorax, last three segments with the following lengths: .21, .157, .07 mm.

Abdomen.—Cornicles with base very small, in places very narrow, and irregular in outline, measuring from .085— .11 mm. across. Base of cornicles in one case too narrow to be provided with hair and not much wider than rim. Dorsum of abdomen with numerous long fine sharp pointed hair. Transverse pigmented spot divided, posterior margins of spots with two irregular rows of hairs which are slightly thicker than those on dorsum of abdomen. Anal plate and cauda with numerous long fine hair.

Holotype alate viviparous female, deposited in collection of E. O. Essig. Collected on *Pinus*, species not indicated, but we suspect *ponderosa*. Mogollon Mts., New Mexico, June 23, 1947. A. T. McClay coll.

This species is difficult to associate with its allies. A number of species have the cornicles somewhat similar, in some cases the species do not belong to the genus *Cinara*, the species that do, with the exception of *C. oregonensis* have *Pseudotsuga* for host, none of these appear to be as large as *vagabunda*. The host of *C. oregonensis* (Wilson) is *Pinus contorta*, a species of pine which we question extending into the region of the Mogollon Mts. of New Mexico. *C. oregonensis* is smaller, has shorter legs, shorter hair and a much longer rostrum. Our only specimen is alate, so *Pseudotsuga* can not be ruled out as the actual host, despite the fact that it was taken on *Pinus*. Prof. Palmer has recently described *Cinara pseudotaxifoliae* and these two species are quite similar, *vagabunda* differs from *pseudotaxifoliae* in having the second segment of the hind tarsae considerably longer, as well as the hind tibiae, and femora.

The hair on the lateral lobes, abdomen, and antennae of *vagabunda* are also slightly longer, while the hair on the hind tibiae are not quite so long.

Cinara nigrita new species

Alate viviparous female:

This species is described from a single cleared mounted specimen, upon which we have neither information as to host, or color notes taken from life.

Size and general color.—Head and thorax brown, with some regions darker than others. First and second antennal segments light brown, both segments with a considerable number of hair. Third antennal segment yellowish at extreme base remainder of segment deep dusky brown. Remaining antennal segment deep dusky brown. Femora yellowish at base shading quickly to brown, the brown becoming more and more intense towards the apex. Tibiae almost uniform deep brown. Tarsi deep brown. Last three segments of rostrum dark brown, second segment spotted near apex. Wings with surface uniformly deeply pigmented with costal region, and stigma much darker. The veins are also bordered with darker pigment. Spiracles within large pigmented areas. Cornicles pale brown. Cauda and anal plate brown. Dorsolateral regions of abdomen with two rows of small light brownish wax pore plates.

Head and thorax.—Antennal segments with the following lengths: III 1.10 mm., IV .50 mm., V .60 mm., VI .24+ .1 mm. Secondary sensoria distributed as follows: III three to six, variable in size, but rather small, arranged in a straight row on apical half of segment. The primary sensorium on this segment is small, and not different from secondary except in position. Fourth antennal with three small secondary sensoria, on this secondary segment the primary sensorium is quite far removed from the apex, it may be questioned as a primary sensorium. Fifth antennal segment with two secondary sensoria and a normal primary sensorium. The primary sensorium on the sixth antennal segment is quite tuberculate. The hair near the base of the third antennal segment are quite short, they are also more numerous than those on other parts of this segment, remaining hair about as long as width of segment and set at an angle of about sixty degrees. The unguis of the sixth antennal segment is very long and finger-like, it has a secondary constriction near the apex. The ocular tubercles are very small, and the eyes are smaller than normal. The rostrum appears long enough to reach the end of the abdomen, the last three segments have the following lengths: .43, .39, .071 mm. The radial sector is slightly bowed. The media is twice branched on one wing and only once branched on the other. On the wing where the media is twice branched the second branch is closer to margin of wing than to the first branch. Media one and two are very close together. Hind tibiae 3.78 mm. long. Hair on hind tibiae numerous, set at an angle of about sixty degrees or more, about as long as width of tibiae. Hairs on inner apex somewhat bunched. First segment of hind tarsis with about seventeen hairs, this segment is .11 mm. in length, second segment of hind tarsis .457 mm. in length, this segment is attached to the first segment by a suture no longer than the width of the segment.

Abdomen.—Abdomen with numerous sharp pointed, long hairs, which

are considerably longer and finer than those located on the hind tibiae. Cornicles much longer than wide, the ratio of length to width being .57-.28 mm. provided with many hairs. Transverse pigmented spot narrow, more or less irregular and fragmented, the wider portions with two rows of long hairs, these and the hair found on the cauda and anal plate are the longest hair on the body.

Holotype alate viviparous female, deposited in the collection of E. O. Essig. Taken by O. Bryant, Santa Catalina Mts., Arizona, July 15, 1938. Lot 21. No host recorded on slide. We suspect that when additional specimens of this species are collected that the host will be found to be *Pinus ponderosa*.

We know of no near relative of this species, the peculiar deep pigmented wings and the character and arrangement of the sensoria separate this species from all species of *Cinara* known to us. The possibility of this species not belonging to the genus *Cinara* was explored, but rejected. It very definitely does not belong to the genus *Lachnus*, the radial sector is not curved enough, and the fifth segment of the rostrum is not blunt, it is typical of *Cinara*.

Cinara hirta new species

Apterous viviparous female:

Size and general color.—This species is described from five cleared specimens, color notes taken from living specimens are not available. Length from vertex to end of anal plate varying from 3.43-4.00 mm. Entire body brown with lateral portions of the abdomen much darker. First two antennal segments concolorous with head third segment yellowish with apical end slightly darker, fourth and fifth antennal segments yellowish except for apical ends which are brown, sixth segment brown except for extreme base which is yellowish. Rostrum with last three segments dark brown, apex of second segment brown with a few spots anterior to this area. Femora yellow at base, shading to brown at apex. Tibiae deep brown at knees, followed by a yellowish area which shades to brown, and from brown to deep black at apex. Tarsi black.

Head and thorax.—Antennal segments with the following lengths: III .57-.64 mm., IV .21-.27 mm., V .24-.28 mm., VI .143-.171+ .057 mm. Both primary and secondary sensoria are absent on the third and fourth antennal segments. Fifth antennal segment with only a large primary sensorium. Unguis of sixth antennal segment sharp pointed. Antennal hair comparatively few in number, coarse, sharp pointed, slightly shorter than width of segment. Body hair most peculiar, originating from small tubercles, only slightly larger than base of hair, the hair are very numerous, in structure they are nail-like, the width being carried out almost to the end which terminates in a manner suggestive of a nail. At the sides of the body the hair are so thick, and overlap that they suggest fur. Hind tibiae varying from 2.28-2.50 mm. in length. Hair on hind tibiae varying from .057-.071 mm., thick, spine-like, rather drooping, a condition in some cases due to the fact that the hairs are bent somewhat near the base, less than one half width of tibiae in length. Hairs on outer margin of tibiae coarser and also less numerous than the hairs on the inner margin. First segment of hind tarsis .157 mm. in

length with about twenty hairs on the ventral surface of apical half of segment. Second segment of hind tarsis .429 mm. in length, the hairs on the dorsal surface of this segment are much coarser and also fewer than those on the ventral surface.

Abdomen.—It is difficult to determine the extent of the cornicle base in this species, because the cornicles lie within the deeply pigmented area of the lateral surface, and are not differentiated from it by color. However since the cornicles are provided with two kinds of hair, a type characteristic of the body, but slightly longer, and many fine sharp pointed hair, one can by measuring the extent of the fine hair determine the size of the cornicle base, it is about .60 mm. The neck of the cornicles is quite restricted, while the rim is broad and flaring, with the edges somewhat turned down. The hair on the ventral surface of the abdomen is of normal type, and not as numerous as that found on the dorsum, apparently it occurs in three lengths, the longest being about three times the length of the shortest. The transverse pigmented spot is divided, the spots being rather narrow, and provided with a row of long nail-pointed hairs. Cauda and anal plate with long fine sharp pointed hair.

Holotype, apterous viviparous female, deposited in the collection of E. O. Essig. Taken at Tucson, Arizona, April 20, 1931, host not mentioned, most likely *Pinus* sp. O. Bryant coll.

The hair on the body of this species make it unique within the family, we are aware of no near allies, within the genus. One specimen, which we have made a paratype, was taken by beating, at Clouderoft, New Mexico, altitude 9,000 ft. June 21, 1947, by A. T. McClay. This specimen differs slightly from the Tucson material, in having thicker and slightly shorter body hair, hair on tibiae less droopy, and longer legs.

Hottes and Essig

New Species of *Cinara*

